*Research Article*

# Trichoscopy versus Histopathological Findings in Some Hair Disorders

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## Abstract
**Introduction:** Hair loss is a common problem that affects up to ٥٠ percent of men and women throughout their lives. Hair loss is commonly categorized into scarring and non-scarring alopecia**.** The aim of the present study is to compare histopathological and dermoscopic findings in some hair disorders. **Patients and Methods:** The study was conducted on ٤٠ patients presented with different hair disorders. Cases were selected from those attending the Dermatology Outpatient Clinic at Minia University Hospital. They were gathered over ٧ months (From the beginning of January ٢٠١٤ to the end of July ٢٠١٤). Written informed consent was taken from all participating patients or their parents. **Result:** The present study was conducted on ٤٠ patients with scalp hair disorders whom attending the outpatient Dermatology, Andrology and STD's clinic Minia University Hospital.
**KeyWords:** Hair loss, histopathological**,** Dermatology, dermoscopic

## Introduction
Hair loss is a common problem that affects up to ٥٠ percent of men and women throughout their lives. Hair loss is commonly categorized into scarring and non-scarring alopecia (Price, ١٩٩٩).

Loss of hair in non-scarring alopecia is often reversible and usually occurs by one of these mechanisms: alopecia areata, androgenetic alopecia, telogen effluvium, trichotillomania, traction alopecia, pressure-induced alopecia, and syphilitic alopecia, alopecia in systemic lupus erythematosus, temporal triangular alopecia and loose anagen hair syndrome (Sperling and Lupton, ١٩٩٥).

Scarring alopecias are further subdivided into primary scarring alopecia in which the hair follicle is the primary target of destruction (Stefanato, ٢٠١٠) and secondary scarring alopecia in which the follicular destruction is secondary to the scarring and occurs outside the follicular unit, e.g the reticular dermis, epidermis or subcutis, it can eventually even eradicate the whole follicle (Moure et al., ٢٠٠٨).

Hair evaluation methods can be categorized as invasive (e.g scalp biopsies), semi-invasive (e.g trichogram) or noninvasive (e.g hair counts, microscopic evaluation, trichoscopy) (Dhurat and Saraogi, ٢٠٠٩). These methods vary in sensitivity, reproducibility and invasiveness and there is a need for non invasive methods that help the clinician in the everyday practice (Ross et al., ٢٠٠٦).

Dermoscopy is an important tool for diagnosing benign and malignant melanocytic diseases and for detecting and differentiating the several types of skin cancer and other inflammatory, infectious and parasitic dermatoses (Malvehy et al., ٢٠٠٦).

Dermoscopic examination of the hair was termed trichoscopy. Because of non-invasiveness and easy accessibility to the hair or scalp, it is very useful in observation and diagnosis of alopecic and hair shaft disorders avoiding skin biopsy (Olszewska et al., ٢٠٠٨).

Structures which may be visualized by trichoscopy include hair shafts, hair follicle openings, the perifollicular epidermis and cutaneous microvessels (Rudnicka et al., ٢٠٠٨).
The aim of the present study is to compare histopathological and dermoscopic findings in some hair disorders.

## Patients and Methods

The study was conducted on ٤٠ patients presented with different hair disorders. Cases were selected from those attending the Dermatology Outpatient Clinic at Minia University Hospital. They were gathered over ٧ months (From the beginning of January ٢٠١٤ to the end of July ٢٠١٤).

Written informed consent was taken from all participating patients or their parents.

**Group (١)**: Patients with alopecia aereata: ٦ males and ٤ females.

**Group (٢)**: Patients with telogen effluvium: ١٠ females.

**Group (٣)**: Patients with androgenic alopecia: ٦ females and ٤ males

**Group (٤)**: Patients with scarring alopecia: ٦ females and ٤ males.

All patients were subjected to history taking, clinical examination, photographing of the affected area in their scalp, dermoscopic examination and scalp biopsy.

**Evaluation and assessment of results:**

The data from clinical, dermoscopic and histopathologic finding and comparison between these findings was analysed.

## Statistical analysis

The collected data were analyzed and figured using a computer based program, SPSS software package for statistical analysis (SPSS for Windows, Version ١٦.٠, copyright©; SPSS Inc., Chicago, IL, USA). The data were expressed in the form of mean and standard deviation (mean ± SD).

## Result

The present study was conducted on ٤٠ patients with scalp hair disorders whom attending the outpatient Dermatology, Andrology and STD's clinic Minia University Hospital.

Patients were classified into ٤ groups (each contains ١٠ patients) according to the clinical diagnosis as follows:

**Group (١)**: Patients with alopecia areata: ٦ males and ٤ females.

**Group (٢)**: Patients with telogen effluvium: ١٠ females.

**Group (٣)**: Patients with androgenic alopecia: ٦ females and ٤ males.

**Group (٤)**: Patients with scarring alopecia: ٦ females and ٤ males.

Age of patients ranged from ١٦ to ٥٢ years with a mean ± SD of ٢٨.١ ± ٧.٨ years. The present study included ١٤ males and ٢٦ females as shown in table (٢) & figure (٩).

**Vertical sections**

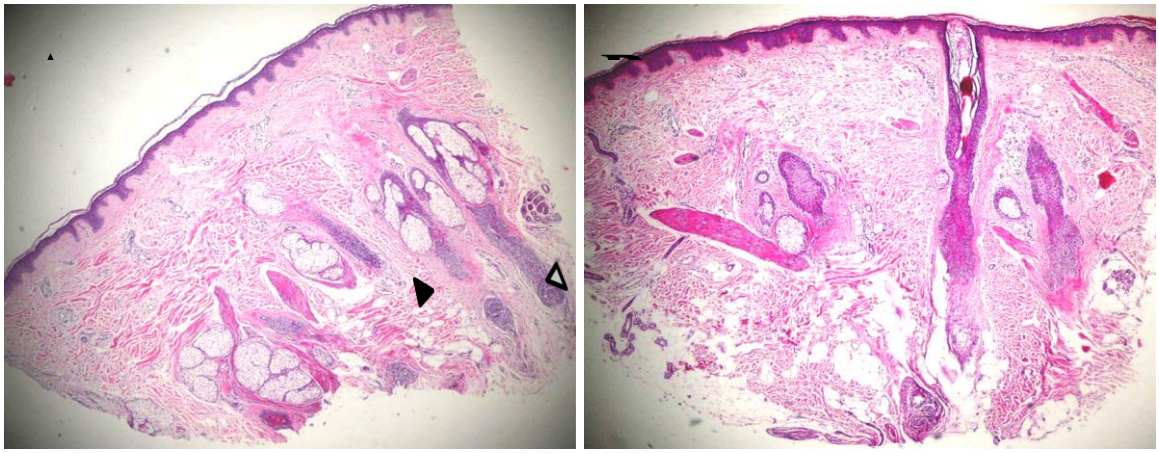

**Fig. (١): Vertical section of AA case (H&E ٤٠x)**: (A) Shows ١ catagen hair follicle (white head) and ١ telogen hair follicle (black head). (B) shows terminal catagen hair follcles.

**٢-Transvers sections**:

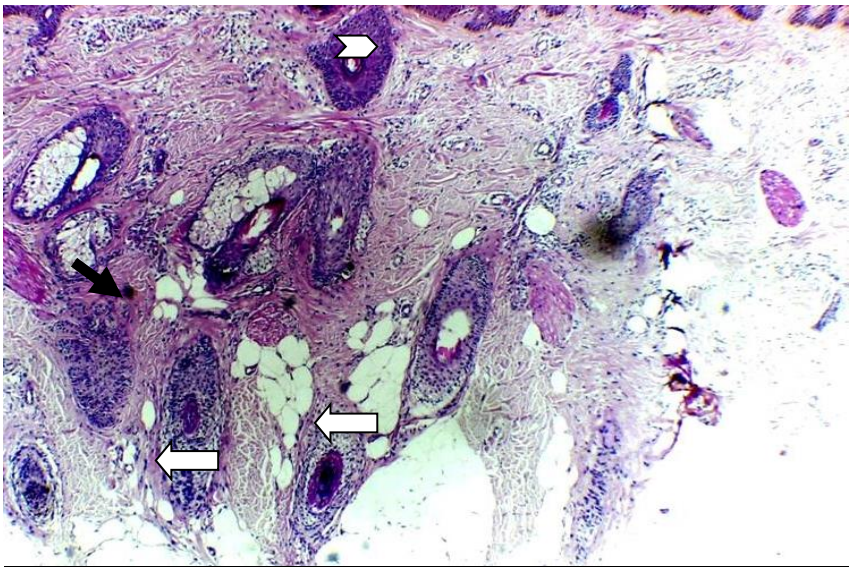

**Fig. (٢): Transverse section of AA case (H&E ٤٠x)**: Shows ١ germinal unit (black arrow), ٢ catagen hair follicles (white arrow), miniaturized hair follicle (white head).

## Discussion

Hair is a unique character of mammals and has several functions, from protection of the skin to sexual and social communication (Buffoli et al., ٢٠١٤).

The various hair types consist of terminal, intermediate and vellus hairs. Terminal hairs fit the classic perception of hair and are the hairs of the scalp, axillae, pubic region, beard, eyebrows and eyelashes. These are long, pigmented and thick. Vellus hairs, on the other hand, are short and generally lack pigmentation and cover most of the body. Intermediate hairs have characteristics that fall in the middle of the spectrum between terminal and vellus hairs (Qi and Garza, ٢٠١٤).

Humans are usually born with approximately ٥ million follicles with no new follicles are thought to be added after birth. The hair follicle cycle, which begins in utero, is composed of three stages: anagen, catagen, and telogen (Wolff et al., ٢٠٠٩ and Habif, ٢٠١٠).

Hair loss is a topic of enormous public interest. It affects men and women of all ages and often significantly affects social and psychologic well-being. It can occur anywhere on the body, but more commonly affects the scalp (Springer et al., ٢٠٠٣). Patients may present with focal patches of hair loss or more diffuse hair loss, which may include predominant hair thinning or increased hairshedding. Hair loss can be divided into; scarring type with skin atrophy and vanishing of the follicular openings. The other type is non-scarring alopecia causing reversible hair loss (Mounsey and Reed, ٢٠٠٩ and Wolff et al. ٢٠٠٩).

Non scarring hair loss may be due to androgenetic alopecia, alopecia areata, telogen effluvium, anagen effluvium, trichotillomania, traction alopecia and loose anagen syndrome (Qi and Garza, ٢٠١٤). Scarring alopecias may be primary, with the hair follicle being the main target of the inflammatory process, or secondary, with follicle damage occurring coincidentally during a more generalized destructive event within the skin (e.g., thermal burn, trauma, infection, ionizing irradiation). Primary cicatricial alopecia (PCA) is a diverse group of inflammatory scalp disorders that target and destroy hair follicles, eventually resulting in permanent alopecia (Harries et al., ٢٠٠٨ and Olsen et al., ٢٠٠٣b).

Primary scarring alopecias can be classified as lymphocytic (discoid lupus erythematosus (DLE), lichen planopilaris (LPP), central centrifugal cicatricial alopecia, pseudopelade of Brocq), neutrophilic (folliculitis decalvans, dissecting folliculitis), and mixed (acne keloidalis) entities (Olsen et al., ٢٠٠١).

Diagnostic methods for hair disordesr can be classified as either invasive (biopsy), semi-invasive (trichogram), or noninvasive (eg, global hair counts, electron microscopy, laser scanning microscopy, trichoscopy) methods (Hillmann and Blume-Peytavi, ٢٠٠٩).

In this study we compare dermoscopic and histopathological findings in some hair disorders. Patients were classified into ٤ groups (each contained ١٠ patients) according to the primary clinical diagnosis. Group ١ represent patients with alopecia areata, group ٢ represent patients with telogen effluvium, group ٣ represent patients with androgenetic alopecia and group ٤ represent patients with scarring alopecia.

Alopecia areata is a complex genetic, immune-mediated disease that targets anagen hair follicles. It has no known age, race, or ethnic preponderance. It is characterized by round or oval patches of hair loss, loss of all scalp hair (alopecia totalis), body hair (alopecia universalis), or ophiasis pattern hair loss. Patients may also present with patchy loss in multiple hair-bearing areas (Maria, ٢٠١٣).

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